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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,617	02/08/2005	Christoph Glingener	2001P09973WOUS	1478
29177	7590	07/01/2008		
BELF., BOYD & LLOYD, LLP			EXAMINER	
P.O. BOX 1135			BELLO, AGUSTIN	
CHICAGO, IL 60690			ART UNIT	PAPER NUMBER
			2613	
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			07/01/2008	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/524,617

**Applicant(s)**

GLINGENER, CHRISTOPH

**Examiner**

Agustin Bello

**Art Unit**

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 June 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 11, 14, 15, 17-20, 24 and 28-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11, 14, 15, 17-20, 24 and 28-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/808)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(c), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(c) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 06/03/08 has been entered.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 11, 14-15, 17-20, 24, and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yee (U.S. Patent No. 7,146,103) in view of Hui (U.S. Patent No. 6,999,688).

Regarding claim 11, Yee teaches a method for transmitting a first and a second data signal in polarization multiplex in an optical transmission system, the method comprising: modulating at the transmitting end the first data signal onto a sideband of a first carrier signal (reference numeral 1660A in Figure 16) to generate a first sideband modulated signal; modulating at the transmitting end the second data signal onto a sideband of a second carrier signal (reference numeral 1660B in Figure 16), which has the same frequency or differs (i.e. 1669A differs from 1669B in Figure 16) by a differential frequency ( $\Delta f$ ) from the first carrier frequency such that the spectra of the first and the second sideband modulated signals overlap

(inherent in that both spectra fit within the bandwidth of optical filter 1615), by which means the transmission bandwidth is reduced, to generate a second sideband modulated signal; orthogonally polarizing the first and the second sideband modulated signals to each other (as noted in Figure 16); combining the first and the second sideband modulated signals into the optical polarization multiplex signal (reference numeral 1614 in Figure 16); transmitting the optical polarization multiplex signal; feeding at the receiving end the transmitted optical polarization multiplex signal to a polarization splitter (reference numeral 1633 in Figure 16) which separates the optical polarization multiplexed signal into the first and the second sideband modulated signals; converting the first sideband modulated signal to a first electrical signal (reference numeral 1630A in Figure 16) and/or converting the second sideband modulated signal to a second electrical signal; analyzing the first and/or the second electrical signal (reference numeral 180, 190 in Figure 1). Yee differs from the claimed invention in two manners.

First, although Yee teaches feeding at the receiving end the transmitted optical polarization multiplex signal to a polarization splitter, Yee differs from the claimed invention in that Yee fails to specifically teach doing so via a polarization control element. However, Yee teaches that the use of a polarization control element (reference numeral 139 in Figure 1) in a different embodiment than that relied upon for the rejections is well known in the art. Furthermore, Hui teaches that feeding at the receiving end the transmitted optical polarization signal via a polarization control element (reference numeral 406 in Figure 4) to a polarization splitter (reference numeral 408 in Figure 4) is well known in the art. One skilled in the art would have been motivated to employ this configuration in the apparatus of Yee in order to provide polarization alignment of the optical signal based on feedback links (column 2 lines 3-6 of Hui).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to feed at the receiving end the transmitted optical polarization multiplex signal of Yee via a polarization control element to a polarization splitter as taught by Hui.

Second Yee differs from the claimed invention in that Yee fails to specifically teach that dependent on the analyzing result, deriving at least one control signal for the purpose of controlling the polarization control element. However, Hui teaches that this concept is well known in the art (reference numeral 428 in Figure 4). One skilled in the art would have been motivated to analyze the result and derive at least one control signal for the purpose of controlling the polarization control element in order to indicate the two principal states of polarization (column 6 lines 1-5). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to analyze the result and derive at least one control signal for the purpose of controlling the polarization control element.

Regarding claim 14, the combination of references and Yee in particular teaches the differential frequency ( $\Delta f$ ) is greater than one Gigahertz (column 24 lines 30-57).

Regarding claim 15, the combination of references and Yee in particular teaches that the sideband modulation is a single sideband modulation (column 20 lines 18-20) or a vestigial sideband modulation.

Regarding claim 17, the combination of references teaches that for a second carrier signal which differs from the first carrier signal by a differential frequency ( $\Delta f$ ) the spectral component of the first and/or the second electrical signal at the receiver is determined at the differential frequency ( $\Delta f$ ) (inherent in the recovery of the signal in Yee) for controlling a polarization control element the second electrical signal (reference numeral 406, 428 in Figure 4 of Hui).

Regarding claim 18, the combination of references and Yee in particular teaches the amplitude of the first and/or the second electrical signal is controlled to a minimum at the differential frequency ( $\Delta f$ ) (inherent in the single sideband discussed throughout).

Regarding claims 19-20, the combination of references and Hui in particular teaches the that the first or second sideband modulated signal is delayed at the transmitting end for the purpose of decorrelation.(reference numeral 112 in Figure 1).

Regarding claim 24, the combination of references and Yee in particular teaches that for the purpose of distinguishing the first and second electrical signals, at least one pilot tone signal (reference numeral  $f_p$  in Figure 10) is superimposed at the transmitting end on the first and/or the second carrier signal or the sideband modulated signal.

Regarding claim 28 and 29, the combination of references differs from the claimed invention in that it fails to specifically teach that the purpose of distinguishing the first and second electrical signals the first and second data signals are transmitted at different bit transmission rates or data formats. However, the use of different bit rates or data formats is well known in the art and Official Notice is given to that effect. One skilled in the art would have been motivated to employ different data rates or different data formats in order to allow the identification of different data groups.

Regarding claim 30, Yee teaches that the optical transmission system is operating in wavelength multiplex mode (reference numeral 2700 in Figure 27).

#### ***Response to Arguments***

4. Applicant's arguments filed 06/03/08 have been fully considered but they are not persuasive. Applicant argues against the use of a different embodiment of Yee for disclosure of

the claimed polarization controller. As noted above, the rejection has been modified to depend on Yee only for disclosure that a polarization controller is well known in the art, and the Hui actually teaches the combination of elements as claimed in a single embodiment.

In response to applicant's argument that Hui teaches away from using an optical delay, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this case, the examiner maintains that Hui disclosure of an optical delay would have suggested its use to one skilled in the art.

As to applicant's arguments that Yee fails to disclose two polarized signals and two sideband signals, the examiner first notes that Yee specifically teaches this at least through disclosure of signals 1660A and 1660B in Figure 16. Furthermore, a differential frequency  $\Delta f$  is apparent between these two frequencies.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Agustin Bello whose telephone number is (571) 272-3026. The examiner can normally be reached on M-F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Agustin Bello/  
Primary Examiner, Art Unit 2613